

Upper Pleistocene Aggradational (UPL A1) Play

Hyalinea "B" through Sangamon Fauna

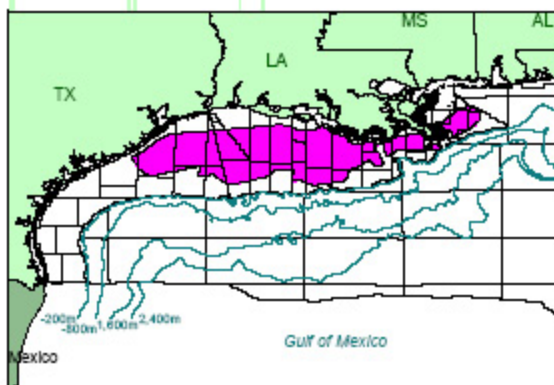


Figure 1. Play location.

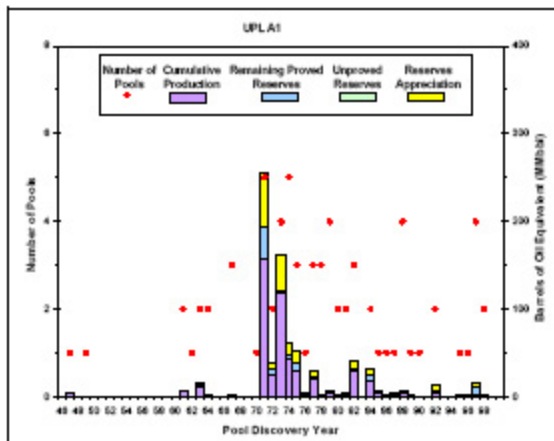


Figure 2. Exploration history graph showing reserves addition and number of pool discoveries by year.

UPL A1 Play		Minimum	Mean	Maximum
71 Pools	205 Sands			
Water depth (feet)		18	165	338
Subsea depth (feet)		983	2621	5082
Number of sands per pool		1	3	15
Porosity		23%	33%	39%
Water saturation		16%	27%	45%

Table 1. Pool attributes. Values are volume-weighted averages of individual reservoir attributes.

Play Description

The established Upper Pleistocene Aggradational (UPL A1) play occurs within the *Hyalinea* "B," *Trimosina* "A" 2nd occurrence and *Trimosina* "A" 1st occurrence biozones, and Sangamon Fauna. This play extends from the northeastern Brazos Area offshore Texas to the Main Pass Area east of the present-day Mississippi River Delta (figure 1).

Uplip, the play extends onshore into Texas in the Brazos and Galveston Areas and into Louisiana from the Ship Shoal to Main Pass Areas. Otherwise, the updip limit for the UPL A1 play occurs where the play is so shallow that it is no longer logged or where it can no longer be correlated. To the northeast and west, the play is limited by a lack of sediment influx at the edges of the UPL depocenter. Downdip, the play grades into the shelf deposits of the Upper Pleistocene Progradational (UPL P1) play.

Play Characteristics

The UPL A1 play is characterized by stacked, blocky, sand-dominated successions representing sediment buildup on fluvial channel/levee complexes, crevasse splays, and point bars; deltaic distributary channel/levee complexes, crevasse splays, distributary mouth bars, bay fill, beaches and barrier islands; and shallow marine shelf delta fringes and slumps. Additionally, retrogradational, reworked sands with a thinning and backstepping log signature locally cap the play. Because these retrogradational sands are poorly developed and discontinuous, they are included as part of the UPL A1 play.

Anticlines, salt diapirs, and growth faults are major structural features in the play. Minor structural features include normal faults and shale diapir-like structures. Seals are pro-

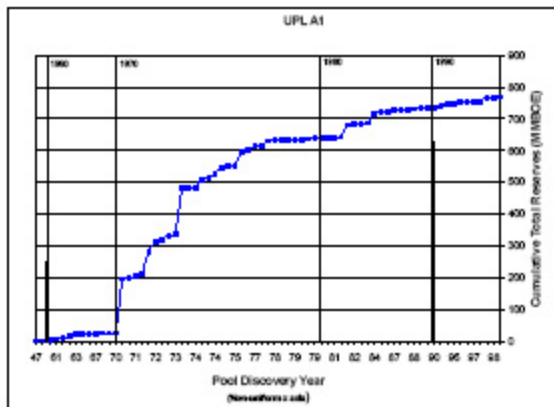


Figure 3. Plot of pools showing cumulative reserves by discovery order. Note the non-uniform x axis.

UPL A1 Play Marginal Probability = 1.00	Number of Pools	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves				
Original proved	71	0.109	2.659	0.582
Cumulative production	—	0.088	2.277	0.493
Remaining proved	—	0.021	0.382	0.089
Unproved	0	0.000	0.000	0.000
Appreciation (P & U)	—	0.033	0.862	0.187
Undiscovered Conventionally Recoverable Resources				
95th percentile	—	0.001	0.090	0.018
Mean	11	0.003	0.133	0.027
5th percentile	—	0.012	0.183	0.038
Total Endowment				
95th percentile	—	0.143	3.611	0.787
Mean	82	0.145	3.654	0.796
5th percentile	—	0.154	3.704	0.807

Table 2. Assessment results for reserves, undiscovered conventionally recoverable resources, and total endowment.

vided by the juxtaposition of reservoir sands with shales and salt, either structurally (e.g., faulting, diapirism) or stratigraphically (e.g., lateral shales, overlying shales).

Discoveries

The UPL A1 gas play contains total reserves of 0.142 Bbo and 3.521 Tcf (0.769 BBOE), of which 0.088 Bbo and 2.277 Tcf (0.493 BBOE) have been produced. The play contains 205 producible sands in 71 pools (table 1; refer to the Methodology section for a discussion of reservoirs, sands, and pools). The first reserves in the play were discovered in the Ship Shoal 32 field in 1947 (figure 2). Discoveries were infrequent and small until the 1970's. The maximum yearly total reserves of 254 MMBOE were added in 1971 with the discovery of five pools, including the largest pool in the play in the Eugene Island 330 field, with 171 MMBOE in mean total reserves (figures 2 and 3). Over 98 percent of the play's cumulative production and 95 percent of its total reserves come from pools discovered before 1990, reflecting the maturity of the play. The most recent discoveries, prior to this study's cutoff date of January 1, 1999, were in 1998.

The 71 discovered pools contain 315 reservoirs, of which 250 are nonassociated gas, 50 are under-saturated oil, and 15 are saturated oil. Cumulative production has consisted of 82 percent gas and 18 percent oil.

Of the 12 aggradational plays in the Gulf of Mexico, the UPL A1 play contains the third largest amount of BOE total reserves and has the third largest amount of BOE cumulative production.

Assessment Results

The marginal probability of hydrocarbons for the UPL A1 play is 1.00. The play contains a mean total endowment of 0.145 Bbo and 3.654 Tcf (0.796 BBOE) (table 2). Sixty-two percent of this BOE mean total

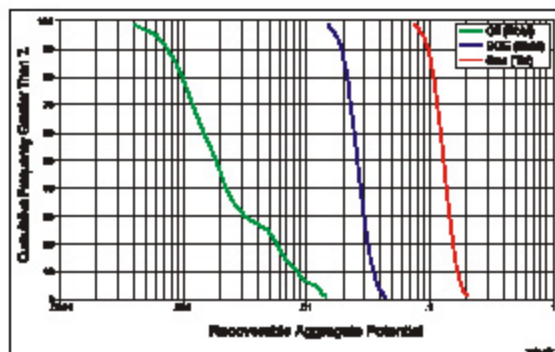


Figure 4. Cumulative probability distribution for undiscovered conventionally recoverable resources.

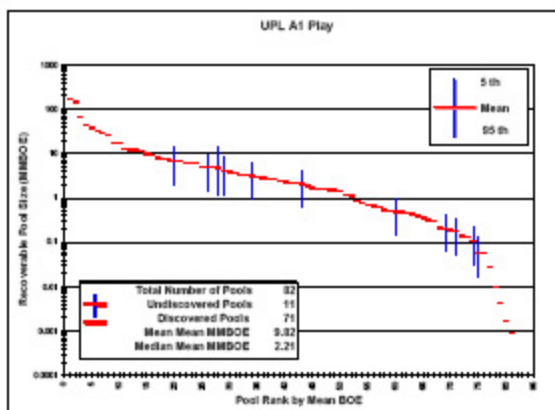


Figure 5. Pool rank plot showing the number of discovered pools (red lines) and the number of pools forecast as remaining to be discovered (blue bars).

endowment has been produced.

Assessment results indicate that undiscovered conventionally recoverable resources (UCRR) have a range of <.001 to 0.012 Bbo and 0.090 to 0.183 Tcf at the 95th and 5th percentiles, respectively (figure 4). Mean UCRR are estimated at 0.003 Bbo and 0.133 Tcf (0.027 BBOE). These undiscovered resources might occur in as many as 11 pools. The largest undiscovered pool, with a mean size of 7 MMBOE, is forecast as the 20th largest pool in the play (figure 5). The forecast places the next four largest undiscovered pools in positions 26, 28, 29 and 34 on the pool rank plot. For all the undiscovered pools in the UPL A1 play, the mean mean size is 2 MMBOE, which is smaller than the 11 MMBOE mean size of the discovered pools. The mean mean size for all pools, including both discovered and undiscovered, is 10 MMBOE.

The UPL A1 play is super-mature with BOE mean UCRR contributing only 3 percent to the UPL A1 play's BOE mean total endowment. Small gas discoveries will continue to be made by drilling shallow seismic amplitudes as economics warrant.